Poster Session B: Middleware & Tools for Embedded Computing

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11:30am - 12:10pm

What is Middleware?

- An emerging area of importance that surprisingly is still not too well defined!
- System software sitting between the OS and applications. Examples include:
  - parallel tools and communications
  - fault protection methods
  - real-time runtime systems environment
  - optimization, adaptive, or evolveable software
  - distributed infrastructure services

Tools

- Graphical user interfaces
- Debuggers
- Performance Optimizers
- Autocoding
- Compilers and Cross compilers
- Interpretive languages

Key Themes

- Fault management middleware
- Real time adaptive QoS middleware
- COTS signal processing design methods
- Integration of VSIPL and OpenMP with interpretive languages for parallel image processing applications
- Graphical programming environments for systems with hardware accelerators
- Autocoding toolsets for parallel applications

Key Themes 2

- C++ expression templates for efficient parallel programming
- Dynamic runtime environments and compilers

Poster Papers

- **PAPER B.1:** Supercomputing Onboard the Next Generation Space Telescope, Maria Nieto-Santisteba (Space Telescope Science Institute)
- **PAPER B.2:** Towards Real-Time Adaptive QoS Management in Middleware for Embedded Computing Systems, Christopher Gill (Washington University)

Poster Papers 2

- **PAPER B.3:** Digital Radio Design Using GEDAE, Richard Jaffe (L-3 Communications Systems East)
- **PAPER B.4:** Integration of VSIPL and OpenMP into a Parallel Image Processing Environment, Jeremy Kepner (MIT Lincoln Laboratory)

Poster Papers 3

- **PAPER B.5:** Design Flow for Automatic Mapping of Graphical Programming Applications to Adaptive Computing Systems, Sze-Wei Ong (University of Tennessee)
- **PAPER B.6:** Autocoding Toolset - Automating Parallel Code Generation from Graphical Design Specifications, Christopher Robbins

Poster Papers 4

- **PAPER B.7:** C++ Expression Templates in an Embedded, Parallel, Real-Time Signal Processing Library, Edward Rutledge (MIT Lincoln Laboratory)
- **PAPER B.8:** Model Based Parallel Programming with Profile-Guided Application Optimization, Jeffrey Smith (Mercury Computer Systems)

Poster Papers 5

- **PAPER 9:** Component Based Operating Systems for Embedded and Real-Time Systems, John Stankovic (University of Virginia)
- **PAPER 10:** Advanced Radar Signal Processing on General-Purpose Commercial Multiprocessor Systems, Thomas Steck (Johns Hopkins University)